

**ACTA METALLURGICA ET MATERIALIA**  
**CONTENTS OF VOLUME 41**

NUMBER 1

- E. Hornbogen and  
E. A. Starke Jr
- T. A. Abinandanan  
and W. C. Johnson
- T. A. Abinandanan and  
W. C. Johnson
- B. D. Butler and J. B. Cohen
- W. Kim, J. E. Flinn and  
J. G. Byrne
- P. Peczak and M. J. Luton
- D. J. Miller and H. L. Fraser
- M. J. Mills and D. B. Miracle
- D. G. Morris, M. M. Dadras  
and M. A. Morris
- C. Nishimura and C. T. Liu
- A. R. Akisanya and  
N. A. Fleck
- Qing Ma and R. W. Balluffi
- Qing Ma, C. L. Liu,  
J. B. Adams and  
R. W. Balluffi
- T. R. Smith and  
E. M. Schulson
- A. O. Aning, Z. Wang and  
T. H. Courtney
- 1 Overview No. 102: Theory assisted design of high strength low alloy aluminum
- 17 Coarsening of elastically interacting coherent particles—I. Theoretical formulation
- 27 Coarsening of elastically interacting coherent particles—II. Simulations of preferential coarsening and particle migrations
- 41 Atomic displacements caused by carbon interstitials in austenite
- 49 Parametric studies of the hot isostatic pressing of rapidly solidified 304 stainless steel powder
- 59 A Monte Carlo study of the influence of dynamic recovery on dynamic recrystallization
- 73 Enhanced decomposition of rapidly solidified microstructures in Al-Fe-Mo and Ti-Al-Er alloys by plastic deformation and applied stress
- 85 The structure of  $\alpha\langle100\rangle$  and  $\alpha\langle110\rangle$  dislocation cores in NiAl
- 97 The influence of Cr addition on the ordered microstructure and deformation and fracture behaviour of a Fe-28%Al intermetallic
- 113 Reactive sintering of  $Ni_3Al$  under compression
- 121 Fatigue and creep of a constrained metal wire
- 133 Diffusion along [001] tilt boundaries in the Au/Ag system—I. Experimental results
- 143 Diffusion along [001] tilt boundaries in the Au/Ag system—II. Atomistic modeling and interpretation
- 153 The brittle compressive failure of fresh-water columnar ice under biaxial loading
- 165 Tungsten solution kinetics and amorphization of nickel in mechanically alloyed Ni-W alloys

**ACTA METALLURGICA ET MATERIALIA**  
**CONTENTS OF VOLUME 41**

NUMBER 1

- E. Hornbogen and  
E. A. Starke Jr
- T. A. Abinandanan  
and W. C. Johnson
- T. A. Abinandanan and  
W. C. Johnson
- B. D. Butler and J. B. Cohen
- W. Kim, J. E. Flinn and  
J. G. Byrne
- P. Peczak and M. J. Luton
- D. J. Miller and H. L. Fraser
- M. J. Mills and D. B. Miracle
- D. G. Morris, M. M. Dadras  
and M. A. Morris
- C. Nishimura and C. T. Liu
- A. R. Akisanya and  
N. A. Fleck
- Qing Ma and R. W. Balluffi
- Qing Ma, C. L. Liu,  
J. B. Adams and  
R. W. Balluffi
- T. R. Smith and  
E. M. Schulson
- A. O. Aning, Z. Wang and  
T. H. Courtney
- 1 Overview No. 102: Theory assisted design of high strength low alloy aluminum
- 17 Coarsening of elastically interacting coherent particles—I. Theoretical formulation
- 27 Coarsening of elastically interacting coherent particles—II. Simulations of preferential coarsening and particle migrations
- 41 Atomic displacements caused by carbon interstitials in austenite
- 49 Parametric studies of the hot isostatic pressing of rapidly solidified 304 stainless steel powder
- 59 A Monte Carlo study of the influence of dynamic recovery on dynamic recrystallization
- 73 Enhanced decomposition of rapidly solidified microstructures in Al-Fe-Mo and Ti-Al-Er alloys by plastic deformation and applied stress
- 85 The structure of  $\alpha\langle100\rangle$  and  $\alpha\langle110\rangle$  dislocation cores in NiAl
- 97 The influence of Cr addition on the ordered microstructure and deformation and fracture behaviour of a Fe-28%Al intermetallic
- 113 Reactive sintering of  $Ni_3Al$  under compression
- 121 Fatigue and creep of a constrained metal wire
- 133 Diffusion along [001] tilt boundaries in the Au/Ag system—I. Experimental results
- 143 Diffusion along [001] tilt boundaries in the Au/Ag system—II. Atomistic modeling and interpretation
- 153 The brittle compressive failure of fresh-water columnar ice under biaxial loading
- 165 Tungsten solution kinetics and amorphization of nickel in mechanically alloyed Ni-W alloys

M. Karayaka and Huseyin Sehitoglu	175	Thermomechanical deformation modeling of Al2xxx-T4/SiC <sub>p</sub> composites
Osamu Ito and E. R. Fuller Jr	191	Computer modelling of anisotropic grain microstructure in two dimensions
Ajay Dhar, L. Clapham and D. L. Atherton	199	The influence of pearlite on magneto-acoustic emission in plain carbon steels
C. Shearwood and R. W. Whitworth	205	Novel processes of dislocation multiplication observed in ice
M. Brede	211	The brittle-to-ductile transition in silicon
J. Echigoya, T. Satoh and T. Ohmi	229	Thin film reaction and interface structure of Cu on (111)Si
A. Garg, Y. C. Chang and J. M. Howe	235	Interfacial structure and transformation mechanism of the Ω phase in Al-3.9 Cu-0.5 Mg-0.5 Ag alloy
Minfa Lin, G. B. Olson and Morris Cohen	253	Homogeneous martensitic nucleation in Fe-Co precipitates formed in a Cu matrix
V. M. Lopez H., N. Sano, T. Sakurai and K. Hirano	265	A study of phase decomposition in Cu-Ni-Fe alloys
S. Chaudhuri, N. Roy and R. N. Ghosh	273	Modelling high temperature creep of Cr-Mo steel
Y. Wang, L.-Q. Chen and A. G. Khachaturyan	279	Kinetics of strain-induced morphological transformation in cubic alloys with a miscibility gap
S. P. Marsh, M. A. Imam, B. B. Rath and C. S. Pande	297	On the kinetics of shrinking grains
J. Pospiech, K. Lücke and K. Sztwiertnia	305	Orientation distribution and orientation correlation functions for description of microstructures

I *Acta Metallurgica et Materialia*—Associate Editors

NUMBER 2

P. Van Houtte and L. De Buyser	323	Overview No. 103: The influence of crystallographic texture on diffraction measurements of residual stress
Y. He, G. M. Dougherty, G. J. Shiflet and S. J. Poon	337	Unique metallic glass formability and ultra-high tensile strength in Al-Ni-Fe-Gd alloys
M. Rappaz and Ch.-A. Gandin	345	Probabilistic modelling of microstructure formation in solidification processes
K. E. Perry, G. B. May, J. S. Epstein, H. Okada and S. N. Atluri	361	Experimental R-curve behavior in partially stabilized zirconia using moiré interferometry

<b>B. Serier and D. Treheux</b>	369	Silver-alumina solid state bonding: influence of the work hardening of the metal
<b>M. M. Chadwick, J. J. Petrovic, S. C. Danforth and T. E. Mitchell</b>	375	Topotactic growth of $\text{Si}_2\text{ON}_2$ on SiC
<b>S. A. Jones and M. J. Kaufman</b>	387	Phase equilibria and transformations in intermediate titanium-aluminum alloys
<b>R. Tandon, D. J. Green and R. F. Cook</b>	399	Strength variability in brittle materials with stabilizing and destabilizing resistance fields
<b>N. Dey and J. A. Sekhar</b>	409	Interface configurations during the directional growth of salol—I. Morphology
<b>N. Dey and J. A. Sekhar</b>	425	Interface configurations during the directional growth of salol—II. Thermal stress cracking
<b>W.-J. Kim and J. K. Park</b>	441	On the kinetics of discontinuous precipitation in an Al-14.6 at.% Zn alloy
<b>Z. Yao and R. H. Wagoner</b>	451	Active slip in aluminum multicrystals
<b>A. Garbacz and M. W. Grabski</b>	469	The relationship between texture and CSL boundaries distribution in polycrystalline materials—I. The grain boundary misorientation distribution in random polycrystal
<b>A. Garbacz and M. W. Grabski</b>	475	The relationship between texture and CSL boundaries distribution in polycrystalline materials—II. Analysis of the relationship between texture and coincidence grain boundary distribution
<b>R. W. Margevicius and J. J. Lewandowski</b>	485	Pressure-induced dislocations and subsequent flow in NiAl
<b>A. Bartlett and A. G. Evans</b>	497	The effect of reaction products on the fracture resistance of a metal/ceramic interface
<b>F. E. Heredia, M. Y. He, G. E. Lucas, A. G. Evans, H. E. Dève and D. Konitzer</b>	505	The fracture resistance of directionally solidified dual-phase NiAl reinforced with refractory metals
<b>B. I. Nikolin, A. Yu. Babkevich, T. V. Izdkovskaya and S. N. Petrova</b>	513	Effect of heat treatment on the crystalline structure of martensite in iron-, nickel-, manganese- and silicon-doped Co-W and Co-Mo alloys
<b>J. Kameda</b>	517	High temperature brittle intergranular cracking in high strength nickel alloys undoped and doped with S, Zr and/or B—I. Crack growth characteristics

J. Kameda and A. J. Bevolo	527	High temperature brittle intergranular cracking in high strength nickel alloys undoped and doped with S, Zr, and/or B—II. Solute segregation analysis
Jiang Xinggang, Cui Jianzhong and Ma Longxiang	539	A cavity nucleation model during high temperature creep deformation of metals
W.-Z. Zhang and G. R. Purdy	543	A TEM study of the crystallography and interphase boundary structure of $\alpha$ precipitates in a Zr-2.5 wt%Nb alloy
Hui Lin and D. P. Pope	553	The influence of grain boundary geometry on intergranular crack propagation in Ni <sub>3</sub> Al
X. Zhang and A. Atrens	563	A TEM study on the microstructure of rapidly solidified Cu-Co alloys
E. K. Tschech, D. M. Tan, H. O. K. Kirchner and S. E. Stanzl	569	Interfacial and subinterfacial fracture in concrete
M. Zehetbauer and V. Seumer	577	Cold work hardening in stages IV and V of f.c.c. metals—I. Experiments and interpretation
M. Zehetbauer	589	Cold work hardening in stages IV and V of f.c.c. metals—II. Model fits and physical results
H. M. Jensen	601	Energy release rates and stability of straight-sided, thin-film delaminations
K. Raviprasad and K. Chattopadhyay	609	The influence of critical points and structure and microstructural evolution in iron rich Fe-Si alloys
V. A. Lubarda, J. A. Blume and A. Needleman	625	An analysis of equilibrium dislocation distributions
M. S. Duesbery and Z. S. Basinski	643	The flow stress of potassium

### NUMBER 3

D. B. Miracle	649	Overview No. 104: The physical and mechanical properties of NiAl
S. J. Sharp, M. F. Ashby and N. A. Fleck	685	Material response under static and sliding indentation loads
Y.-F. Li, G. C. Farrington and C. Laird	693	Cyclic response-electrochemical interaction in mono- and polycrystalline AISI 316L stainless steel in H <sub>2</sub> SO <sub>4</sub> solution—I. The influence of mechanical strain on the transient dissolution behavior during corrosion fatigue

<b>Y.-F. Li, G. C. Farrington and C. Laird</b>	709	Cyclic response-electrochemical interaction in mono- and polycrystalline AISI 316L stainless steel in H <sub>2</sub> SO <sub>4</sub> solution—II. Potential dependence of the transient dissolution behavior during corrosion fatigue
<b>Y.-F. Li, G. C. Farrington and C. Laird</b>	723	Cyclic response-electrochemical interaction in mono- and polycrystalline AISI 316L stainless steel in H <sub>2</sub> SO <sub>4</sub> solution—III. Potential dependence of the mechanical behavior during corrosion fatigue
<b>M.-X. Zhang and Y. A. Chang</b>	739	Stability of an alloy/oxide interface with oxygen ions being the dominant diffusing species in the oxide scale
<b>Y. C. Lo, S. K. Wu and H. E. Horng</b>	747	A study of B2↔B19↔B19' two-stage martensitic transformation in a Ti <sub>50</sub> Ni <sub>40</sub> Cu <sub>10</sub> alloy
<b>K. S. Chan</b>	761	Effects of interface degradation on fiber bridging of composite fatigue cracks
<b>A. Luo, D. J. Lloyd, A. Gupta and W. V. Youdelis</b>	769	Precipitation and dissolution kinetics in Al-Li-Cu-Mg alloy 8090
<b>S. K. Das, A. Biswas and R. N. Ghosh</b>	777	Volume fraction dependent particle coarsening in plain carbon steel
<b>Y. Brechet and F. Louchet</b>	783	A physical approach to the toughness problem: from thermodynamics to kinetics—I. The homogeneous case
<b>F. Louchet and Y. Brechet</b>	793	A physical approach to the toughness problem: from thermodynamics to kinetics—II. The heterogeneous case
<b>S. M. Barinov and V. Yu. Evdokimov</b>	801	Zirconia-toughening of nickel aluminide
<b>A. J. Phillipps, W. J. Clegg and T. W. Clyne</b>	805	Fracture behaviour of ceramic laminates in bending—I. Modelling of crack propagation
<b>A. J. Phillipps, W. J. Clegg and T. W. Clyne</b>	819	Fracture behaviour of ceramic laminates in bending—II. Comparison of model predictions with experimental data
<b>K. Hono, N. Sano, S. S. Babu, R. Okano and T. Sakurai</b>	829	Atom probe study of the precipitation process in Al-Cu-Mg-Ag alloys
<b>K. Parlinski, E. K. H. Salje and V. Heine</b>	839	Annealing of tweed microstructure in high $T_c$ superconductors studied by a computer simulation
<b>X. D. Zhang, Y. J. Bi and M. H. Loretto</b>	849	Structure and stability of the precipitates in melt spun ternary Al-transition-metal alloys
<b>M. Ignat, J.-Y. Buffiere and J. M. Chaix</b>	855	Microstructures induced by a stress gradient in a nickel-based superalloy
<b>R. L. Fleischer</b>	863	Substitutional solutes in AlRu—I. Effects of solute on moduli, lattice parameters and vacancy production

M. Y. He, A. G. Evans and W. A. Curtin	871	The ultimate tensile strength of metal and ceramic-matrix composites
M. Dikici	879	Effect of elastic distortions caused by Orowan loops in an infinite anisotropic medium on Moiré fringes
I. Dutta, J. D. Sims and D. M. Seigenthaler	885	An analytical study of residual stress effects on uniaxial deformation of whisker reinforced metal-matrix composites
J. Grilhe	909	Study of roughness formation induced by homogeneous stress at the free surfaces of solids
Hiroshi Okumura, Akihisa Inoue and Tsuyoshi Masumoto	915	Heating rate dependence of two glass transitions and phase separation for a La <sub>35</sub> Al <sub>25</sub> Ni <sub>20</sub> amorphous alloy
Kyung-mox Cho, Sunghak Lee, S. R. Nutt and J. Duffy	923	Adiabatic shear band formation during dynamic torsional deformation of an HY-100 steel
Zhi'an Yang, Zhirui Wang, Xiaobo Hu and Zhongguang Wang	933	Effect of cyclic stress on the high temperature creep behavior of Al-Mg alloys
Nack J. Kim and Eui W. Lee	941	Effect of $T_1$ precipitate on the anisotropy of Al-Li alloy 2090
R. Z. Valiev and T. G. Langdon	949	An investigation of the role of intragranular dislocation strain in the superplastic Pb-62% Sn eutectic alloy
N. Taylor, D. C. Dunand and A. Mortensen	955	Initial stage hot pressing of monosized Ti and 90% Ti-10% TiC powders
S. A. Mujahid and H. K. D. H. Bhadeshia	967	Coupled diffusional/displacive transformations: effect of carbon concentration
T. Kamijo, H. Adachihiara and H. Fukutomi	975	Formation of a (001)[100] deformation structure in aluminum single crystals of an S-orientation

#### NUMBER 4

M. H. Yoo, S. L. Sass, C. L. Fu, M. J. Mills, D. M. Dimiduk and E. P. George	987	Overview No. 105: Deformation and fracture of intermetallics
T. S. Kê (Ge Tingsui) and Duan Yuhua	1003	Stress relaxation across the boundary in 99.999% aluminium bicrystals and the variation of relaxation strength with temperature of measurement
T. Takasugi, J. Kishino and S. Hanada	1009	Anomalous elongation behavior of stoichiometric NiAl single crystals at intermediate temperatures
T. Takasugi, J. Kishino and S. Hanada	1021	Stress asymmetry of stoichiometric NiAl single crystals

A. A. Nazarov, A. E. Romanov and R. Z. Valiev	1033	On the structure, stress fields and energy of nonequilibrium grain boundaries
N. A. Akhmadeev, N. P. Kobelev, R. R. Mulyukov, Ya. M. Soifer and R. Z. Valiev	1041	The effect of heat treatment on the elastic and dissipative properties of copper with the submicrocrystalline structure
A. Sato, K. Tamura, M. Ito, M. Kato and T. Mori	1047	<i>In situ</i> observation of moving dislocations in a Cu-10Ni- 6Sn spinodal alloy
M. D. Thouless	1057	Effect of surface diffusion on the creep of thin films and sintered arrays of particles
M. D. Baró, S. Suriñach, J. Malagelada, M. T. Clavaguera-Mora, S. Gialanella and R. W. Cahn	1065	Kinetics of reordering of Ni <sub>3</sub> Al disordered by ball-milling
U. Klement and P. Haasen	1075	<i>In situ</i> HVEM-investigations of the early stages of recrys- tallization in Cu-0.2 at.% Mn-single crystals
D. Deng, F. Zheng, Y. Xu, G. Qi and A. S. Argon	1089	Creep and structural relaxation in Pd40Ni40P20 glass
C. Colinet, G. Inden and R. Kikuchi	1109	CVM calculation of the phase diagram of b.c.c. Fe-Co-Al
E. A. Holm, D. J. Srolovitz and J. W. Cahn	1119	Microstructural evolution in two-dimensional two-phase polycrystals
J. A. Floro and C. V. Thompson	1137	Numerical analysis of interface energy-driven coarsening in thin films and its connection to grain growth
Y. Umakoshi, T. Nakano, T. Takenaka, K. Sumimoto and T. Yamane	1149	Orientation and temperature dependence of yield stress and slip geometry of Ti <sub>3</sub> Al and Ti <sub>3</sub> Al-V single crystals
Y. Umakoshi and T. Nakano	1155	The role of ordered domains and slip mode of $\alpha_2$ phase in the plastic behaviour of TiAl crystals containing oriented lamellae
K. Milička	1163	Constant structure creep in metals after stress reduction in steady state stage
D. P. Dunham and J. C. Gibeling	1173	Thermally and mechanically activated dislocation glide: experimental results and theoretical analysis
Wenxu Guo, J. R. Dryden and G. R. Purdy	1183	Observations of the effect of an applied stress on the morphology of discontinuous precipitation in a Cu-Cd alloy

D. M. Knowles, T. J. Downes and J. E. King	1189	Crack closure and residual stress effects in fatigue of a particle-reinforced metal matrix composite
R. L. Fleischer	1197	Substitutional solutes in AlRu-II. Hardening and correlations with defect structure
Hiromi Miura, Taku Sakai, Norio Tada, Masaharu Kato and T. Mori	1207	Temperature dependence of ductility and fracture of Cu-SiO <sub>2</sub> bicrystals with [001] twist boundaries
A. M. Othman, J. Lin, D. R. Hayhurst and B. F. Dyson	1215	Comparison of creep rupture lifetimes of single and double notched tensile bars
M. Y. He, F. E. Heredia, D. J. Wissuchek, M. C. Shaw and A. G. Evans	1223	The mechanics of crack growth in layered materials
R. Lappalainen, A. Pannikat and R. Raj	1229	Superplastic flow in a non-stoichiometric ceramic: magnesium aluminate spinel
S. A. Kukushkin and T. V. Sakalo	1237	Diffusional coalescence of island films on the real crystal surface in the case of layer-by-layer growth of islands—I. An isolated system
S. A. Kukushkin and T. V. Sakalo	1243	Diffusional coalescence of island films on the real crystal surface in the case of layer-by-layer growth of islands—II. An open system. Undamped sources of deposited atoms
T. Kamijo, A. Inoue and H. Fukutomi	1245	Inhomogeneous deformation in embedded aluminum single crystals during cold-rolling
P. M. Hazzledine and J. H. Schneibel	1253	Theory of Coble creep for irregular grain structures
Won-Hyuk Rhee, Young-Jun Baik and Duk-Yong Yoon	1263	Grain boundary migration with precipitation and dissolution of a liquid phase in Mo-Ni alloy
A. W. Pryce and P. A. Smith	1269	Matrix cracking in unidirectional ceramic matrix composites under quasi-static and cyclic loading
U. D. Kulkarni, S. Banerjee and S. D. Kulkarni	1283	On the evolution of quasiperiodicity through faulting—a projection formalism approach
Zhuorning Guan, Guoxun Liu and Juan Du	1293	Characterization of diffusion induced grain boundary migration in the Ag/Cu system
M. Srinivas, G. Malakondaiah and P. Rama Rao	1301	Fracture toughness of f.c.c. nickel and strain ageing b.c.c. iron in the temperature range 77–773 K

## NUMBER 5

- M. F. Ashby 1313 Overview No. 106: Criteria for selecting the components of composites
- A. K. Malhotra and D. C. Van Aken 1337 Experimental and theoretical aspects of internal friction associated with the melting of embedded particles
- A. Thorvaldsen 1347 Grain growth as a stochastic process
- W. W. Mullins and J. Viñals 1359 Scaling in linear bubble models of grain growth
- W. A. Curtin 1369 Multiple matrix cracking in brittle matrix composites
- K. S. Kumar, M. S. DiPietro and J. D. Whittenberger 1379 Compression response of monolithic and particulate-reinforced composites of  $\text{Al}_{67}\text{Ti}_{25}\text{Cr}_8$  and  $\text{Al}_{66}\text{Ti}_{25}\text{Mn}_9$
- A. R. Yavari 1391 Reordering kinetics and magnetic properties of mechanically disordered nanocrystalline L1<sub>2</sub>-type Ni<sub>3</sub>Al + Fe alloys
- A. Toshimitsu Yokobori Jr, Takeshi Isogai and Takeo Yokobori 1405 A model emitting dislocation group from crack tip with stress singularity and its application to brittle-ductile transition
- D. Bouvard 1413 Modelling the densification of powder composites by power law creep
- D. A. Hughes 1421 Microstructural evolution in a non-cell forming metal: Al-Mg
- P. M. Mummary, B. Derby and C. B. Scruby 1431 Acoustic emission from particulate-reinforced metal matrix composites
- J. Balik and P. Lukáč 1447 Portevin-Le Châtelier instabilities in Al-3 Mg conditioned by strain rate and strain
- J. Xu, X. K. Sun, W. X. Chen and Y. Y. Li 1455 Hydrogen permeation and diffusion in iron-base superalloys
- P. E. McHugh, R. J. Asaro and C. F. Shih 1461 Computational modeling of metal matrix composite materials—I. Isothermal deformation patterns in ideal microstructures
- P. E. McHugh, R. J. Asaro and C. F. Shih 1477 Computational modeling of metal matrix composite materials—II. Isothermal stress-strain behavior
- P. E. McHugh, R. J. Asaro and C. F. Shih 1489 Computational modeling of metal matrix composite materials—III. Comparisons with phenomenological models
- P. E. McHugh, R. J. Asaro and C. F. Shih 1501 Computational modeling of metal matrix composite materials—IV. Thermal deformations
- S. Lay and G. Nouet 1511 On the possible multiplicity of nearly equivalent coincidence site lattices for (0112) twin in hexagonal crystals

- K. Aoki, X.-G. Li, T. Hirata, 1523 A correlation between stability of compounds and structure  
E. Matsubara, Y. Waseda  
and T. Masumoto of hydrogen-induced amorphous alloys in  $GdM_2$ (M = Fe, Co, Ni)
- F. Tranchant, J. Vergnol 1531 On the twinning initiation criterion in Cu-Al alpha single crystals—I. Experimental and numerical analysis of slip and dislocation patterns up to the onset of twinning
- P. Franciosi, F. Tranchant 1543 On the twinning initiation criterion in Cu-Al alpha single crystals—II. Correlation between the microstructure characteristics and the twinning initiation
- Z. Suo, C. F. Shih and 1551 A theory for cleavage cracking in the presence of plastic flow  
A. G. Varrias
- D. Duly 1559 Application of the invariant line model for b.c.c./h.c.p. couples: a criterion based on surface variations
- M. W. Dib and G. J. Rodin 1567 Continuum damage mechanics of constrained intergranular cavitation
- Yasunari Yoshitomi, 1577 Coincidence grain boundary and role of inhibitor for Kenzou Iwayama,  
Takeo Nagashima,  
Jirou Harase secondary recrystallization in Fe-3% Si alloy  
and Nobuyuki Takahashi
- Y. Liu 1587 Effects of martensite morphology on the aging behaviour of virgin martensite
- A. Bouzaher and R. Bonnet 1595 Misfit dislocations arranged in a hexagonal network in anisotropic elasticity. Related displacement field and stored elastic energy
- X. Hu, H. Margolin and 1605 Constraint induced stresses and the hard surface-soft surface question in fatigue  
S. Nourbakhsh
- H. R. Habibi Bajguirani, 1613 TEM investigation of precipitation phenomena occurring in PH 15-5 alloy  
C. Servant and G. Cizeron
- X. F. Hu, Q. L. Ge and 1625 Interaction between titanium and nitrogen atoms in solid solution of ferrous alloys  
Z. L. Wu
- W. C. Carter and 1633 Morphology of grain growth in response to diffusion induced elastic stresses: cubic systems  
C. A. Handwerker

#### NUMBER 6

- R. Monzen, M. Futakuchi, 1643 Measurement of grain boundary sliding of [011] twist boundaries in copper by electron microscopy  
K. Kitagawa and T. Mori
- R. Torrecillas, J. S. Moya, 1647 Microstructure and mechanical properties of mullite-zirconia reaction-sintered composites  
S. de Aza, H. Gros and  
G. Fantozzi

C. Maurice and J. H. Driver	1653	High temperature plane strain compression of cube oriented aluminium crystals
T. Nakamura and S. Suresh	1665	Effects of thermal residual stresses and fiber packing on deformation of metal-matrix composites
Chr. Herzog, J. Geise and Yu. Mishin	1683	Grain boundary diffusion and grain boundary segregation of tellurium in silver
X. M. Zhang, D. F. Li, Z. S. Xing, E. Gautier, J. S. Zhang and A. Simon	1693	Morphology transition of deformation-induced lenticular martensite in Fe-Ni-C alloys
A. F. Whitehouse and T. W. Clyne	1701	Cavity formation during tensile straining of particulate and short fibre metal matrix composites
T. Kamijo, S. Kataoka and H. Inagaki	1713	Nucleation and growth of cube-oriented recrystallized grains in an aluminum single crystal of an <i>S</i> -orientation
F. Appel, P. A. Beaven and R. Wagner	1721	Deformation processes related to interfacial boundaries in two-phase $\gamma$ -titanium aluminides
Hiroshi Okuda, Masanori Tanaka, Kozo Osamura and Yoshiyuki Amemiya	1733	Synchrotron-radiation small-angle scattering measurements of the reversion process of $\delta'$ precipitates in Al-8.1%Li binary alloy
F. Haessner and J. Schmidt	1739	Investigation of the recrystallization of low temperature deformed highly pure types of aluminium
M. Sakai	1751	Energy principle of the indentation-induced inelastic surface deformation and hardness of brittle materials
E. Sato and K. Kurabayashi	1759	A model of internal stress superplasticity based on continuum micromechanics
T. Haubold	1769	EXAFS studies of bismuth doped nanocrystalline copper
J. M. Zhang and K. Y. Lam	1773	On transformation shear of precipitated zirconia particles
T. Hirano and T. Mawari	1783	Unidirectional solidification of Ni <sub>3</sub> Al by a floating zone method
W. Wunderlich, Th. Kremser and G. Frommeyer	1791	Mobile dislocations at the $\alpha_2/\gamma$ phase boundaries in intermetallic TiAl/Ti <sub>3</sub> Al-alloys
B. Wei, D. M. Herlach, B. Feuerbacher and F. Sommer	1801	Dendritic and eutectic solidification of undercooled Co-Sb alloys
Qing Ma and D. R. Clarke	1811	Optical fluorescence from chromium ions in sapphire: a probe of the image stress

- Qing Ma and D. R. Clarke 1817 Measurement of residual stresses in sapphire fiber composites using optical fluorescence
- G. Pezzotti 1825 On the actual contribution of crack deflection in toughening platelet-reinforced brittle-matrix composites
- Y. S. Lee, T. A. Kozlosky and T. J. Batt 1841 Effects of grain boundary diffusion and power law creep on cylindrical cavity deformation
- H. W. Sizek and G. T. Gray III 1855 Deformation of polycrystalline Ni<sub>3</sub>Al at high strain rates and elevated temperatures
- C. S. Nichols, C. M. Mansuri, S. J. Townsend and D. A. Smith 1861 *In situ* studies of grain growth in thin metal films
- A. J. Allen, D. Gavillet and J. R. Weertman 1869 SANS and TEM studies of isothermal M<sub>2</sub>C carbide precipitation in ultrahigh strength AF1410 steels
- M. Buchwitz, R. Adlwarth-Dieball and P. L. Ryder 1885 Kinetics of the crystallization of amorphous Ti<sub>2</sub>Ni
- R. E. Bolmaro, F. M. Guerra, U. F. Kocks, R. V. Browning, P. R. Dawson, J. D. Embury and W. J. Poole 1893 On plastic strain distribution and texture development in fiber composites
- D. Daniel, J. Savoie and J. J. Jonas 1907 Textures induced by tension and deep drawing in low carbon and extra low carbon steel sheets
- B. J. Duggan, K. Lücke, G. Köhlhoff and C. S. Lee 1921 On the origin of cube texture in copper
- H. Riedel and J. Svoboda 1929 A theoretical study of grain growth in porous solids during sintering
- 1937 Corrigendum

#### NUMBER 7

##### iii Editorial Note

- M. H. Oh, H. Inui, M. Misaki and M. Yamaguchi 1939 Environmental effects on the room temperature ductility of polysynthetically twinned (PST) crystals of TiAl
- M. Hillert, L. Höglund and J. Ågren 1951 Escape of carbon from ferrite plates in austenite
- D. A. W. Kaute, H. R. Shercliff and M. F. Ashby 1959 Delamination, fibre bridging and toughness of ceramic matrix composites

M. L. Wasz and R. B. McLellan	1971	The diffusion of hydrogen at low temperatures in Pd–Er–H ternary solutions
Huaxin Li and T. K. Chaki	1979	Hydrogen embrittlement in ductile Ni <sub>3</sub> Al—effects of hydrogen content, strain rate and pre-deformation
J. Noordhuis and J. Th. M. De Hosson	1989	Microstructure and mechanical properties of a laser treated Al alloy
C. F. Lau and H. W. Kui	1999	On the dendrites and dendritic transitions in undercooled germanium
M. Blicharski, R. Becker and Hsun Hu	2007	Deformation texture of channel-die deformed aluminum bicrystals with S orientations
Zhigang Fang and B. R. Patterson	2017	Experimental investigation of particle size distribution influence on diffusion controlled coarsening
D. A. Huntley and S. H. Davis	2025	Thermal effects in rapid directional solidification: linear theory
M. Kajihara and M. Kikuchi	2045	Numerical analysis of dissolution of $\alpha$ phase in $\gamma/\alpha/\gamma$ diffusion couples of the Fe–Cr–Ni system
D. P. Walls, G. Bao and F. W. Zok	2061	Mode I fatigue cracking in a fiber reinforced metal matrix composite
N. A. Dvorovienko, D. Hamana, S. A. Gernov and A. F. Sirenko	2073	Oscillation of structure characteristics in polycrystalline nickel during plastic deformation
D. G. Morris, M. A. Morris and M. Leboeuf	2077	Fracture of a manganese-modified titanium trialuminide alloy
S. A. Demin, A. A. Nekrasov and A. I. Ustinov	2091	X-ray diffraction study of one-dimensionally disordered structure formation in Co-based alloys
Zhenhai Xia	2097	Role of coatings in axial tensile strength of long fibre-reinforced metal-matrix composites
M. M. D. Ramos, A. M. Stoneham and A. P. Sutton	2105	Aluminium/polyimide adhesion
A. C. F. Cocks and Z.-Z. Du	2113	Pressureless sintering and HIPing of inhomogeneous ceramic compacts
P. F. Thomason	2127	Ductile fracture by the growth and coalescence of microvoids of non-uniform size and spacing
A. S. Murthy and E. Goo	2135	Martensitic transformation of the Ni <sub>2</sub> Al phase in 63.1 at.% NiAl
K. P. D. Lagerlöf	2143	On deformation twinning in b.c.c. metals

- E. Ustundag, R. Subramanian, 2153 *In situ* formation of metal-ceramic microstructures, including metal-ceramic composites, using reduction reactions  
 R. Vaia, R. Dieckmann and S. L. Sass
- T. Muschik, W. Laub, 2163 Energetic and kinetic aspects of the faceting transformation of a  $\Sigma 3$  grain boundary in Cu  
 U. Wolf, M. W. Finnis and W. Gust
- G. Saada and E. Bouchaud 2173 Dislocation walls
- D. Josell 2179 Exact solution for the zero creep load of a wire
- S. Socrate and D. M. Parks 2185 Numerical determination of the elastic driving force for directional coarsening in Ni-superalloys
- V. V. Rybin, A. A. Zisman and N. Yu. Zolotorevsky 2211 Junction disclinations in plastically deformed crystals
- R. A. Batto and E. M. Schulson 2219 On the ductile-to-brittle transition in ice under compression
- M. Weisse, C. K. Wamukwamba, H.-J. Christ and H. Mughrabi 2227 The cyclic deformation and fatigue behaviour of the low carbon steel SAE 1045 in the temperature regime of dynamic strain ageing
- D. G. Ulmer and C. J. Altstetter 2235 Phase relations in the hydrogen-austenite system
- R. S. Mishra, A. G. Paradkar and K. N. Rao 2243 Steady state creep behaviour of a rapidly solidified and further processed Al-5 wt% Ti alloy  
 2253 Corrigenda

I *Acta Metallurgica et Materialia*—Associate Editors

NUMBER 8

- U. Kunaver and D. Kolar 2255 Computer simulation of anisotropic grain growth in ceramics
- C. S. Lee, B. J. Duggan and R. E. Smallman 2265 A theory of deformation banding in cold rolling
- P. H. Leo and Herng-Jeng Jou 2271 Shape evolution of an initially circular precipitate growing by diffusion in an applied stress field
- Z. L. Xie, B. Sundqvist, H. Hänninen and J. Pietikäinen 2283 Isothermal martensitic transformation under hydrostatic pressure in an Fe-Ni-C alloy at low temperatures
- J. Lu and J. A. Szpunar 2291 Molecular-dynamics simulation of rapid solidification of aluminum

D. M. Elzey and H. N. G. Wadley	2297	Modeling the densification of metal matrix composite monotape
C. Woeltjen, C. F. Shih and S. Suresh	2317	Cyclic near-tip fields for fatigue cracks along metal–metal and metal–ceramic interfaces
S. I. Hong, G. T. Gray III and J. J. Lewandowski	2337	Dynamic deformation behavior of Al–Zn–Mg–Cu alloy matrix composites reinforced with 20 vol.% SiC
M. Olsson and A. E. Giannakopoulos	2353	Microcracking of an internally pressurized ceramic ring
Z. C. Xia, R. R. Carr and J. W. Hutchinson	2365	Transverse cracking in fiber-reinforced brittle matrix, cross-ply laminates
S. Muto, D. Schryvers, N. Merk and L. E. Tanner	2377	High-resolution electron microscopy and electron diffraction study of the displacive transformation of the Ni <sub>2</sub> Al phase in a Ni <sub>65</sub> Al <sub>35</sub> alloy and associated with the martensitic transformation
Young Joon Baik, Jin Kon Kim and Duk Yong Yoon	2385	The effect of elastic anisotropy on the migration of intergranular liquid films and the precipitation of a liquid phase in a Co–Cu alloy
J. C. Ambrose, M. G. Nicholas and A. M. Stoneham	2395	Dynamics of liquid drop spreading in metal–metal systems
Z. Fan and A. P. Miodownik	2403	The deformation behaviour of alloys comprising two ductile phases—I. Deformation theory
Z. Fan and A. P. Miodownik	2415	The deformation behaviour of alloys comprising two ductile phases—II. Applications of the theory
H. F. Wang, W. W. Gerberich and C. J. Skowronek	2425	Fracture mechanics of Ti/Al <sub>2</sub> O <sub>3</sub> interfaces
S. Khan and R. Elliott	2433	Solidification kinetics of the unmodified aluminium–silicon flake structure
P. Ratchev, J. Van Humbeeck and L. Delaey	2441	On the formation of 2H stacking sequence in 18R martensite plates in a precipitate containing Cu–Al–Ni–Ti–Mn alloy
V. Doquet	2451	Twinning and multiaxial cyclic plasticity of a low stacking-fault-energy f.c.c. alloy
A. Banerji, Q. Feng and W. Reif	2461	Structural elucidation of crystallisation centers in aluminium inoculated with titanium
C. Ko and R. B. McLellan	2473	The thermodynamics of Ni–Cu–H solid solutions
P. H. Leo, T. W. Shield and O. P. Bruno	2477	Transient heat transfer effects on the pseudoelastic behavior of shape-memory wires
K. Sumiyama, K. Yoshimoto and M. Shiga	2487	Hierarchy of nonequilibrium phases in the immiscible Fe–Cu–Ag alloy system

- Ho Yong Lee,  
Suk-Joong L. Kang and  
Duk Yong Yoon 2497 The effect of elastic anisotropy on the direction and faceting  
of chemically induced grain boundary migration in  $\text{Al}_2\text{O}_3$
- A. Böttcher and K. Lücke 2503 Influence of subsurface layers on texture and microstructure development in RGO electrical steel
- T. S. Sriram, Chih-Ming Ke 2515 and Y. W. Chung Fatigue deformation of silver single crystals: STM evidence for crack nucleation, measurements of slip irreversibility and verification of a new scaling relationship for fatigue life

#### NUMBER 9

##### iii Editorial Announcement

- Yu. V. Milman,  
B. A. Galanov and  
S. I. Chugunova 2523 Overview No. 107: Plasticity characteristic obtained through hardness measurement
- H. Y. Wang, R. Najafabadi,  
D. J. Srolovitz and  
R. LeSar 2533 Segregation to and structure of [001] twist grain boundaries in Cu–Ni alloys
- J. Pons and E. Cesari 2547 Martensitic transformation cycling in a  $\beta$  Cu–Zn–Al alloy containing  $\gamma$ -precipitates
- M. van den Burg and  
J. Th. M. De Hosson 2557 Martensitic transformations in laser processed coatings
- R. Kozubski 2565 Thermal vacancies in B2 and L1<sub>2</sub> ordering alloys
- J. Y. Huh, J. M. Howe  
and W. C. Johnson 2577 Effect of coherency stresses on  $\alpha + \alpha_2$  phase equilibria in Ti–Al alloys
- A. H. Advani, L. E. Murr,  
D. J. Matlock,  
R. J. Romero, W. W. Fisher,  
P. M. Tarin,  
J. G. Maldonado,  
C. M. Cedillo, R. L. Miller  
and E. A. Trillo 2589 Deformation-induced microstructure and martensite effects on transgranular carbide precipitation in type 304 stainless steels
- D. E. Meyers and A. J. Ardell 2601 Mechanical properties of individual grain boundaries in Ni<sub>3</sub>Al using a miniaturized disk-bend test
- R. A. Lebensohn and  
C. N. Tomé 2611 A self-consistent anisotropic approach for the simulation of plastic deformation and texture development of polycrystals: application to zirconium alloys
- J. B. Adams and W. G. Wolfer 2625 Void formation in rapidly-solidified metals
- I. Baker 2633 Room temperature deformation of a lead-based “super-alloy”

- J. Bystrzycki, W. Przetakiewicz 2639 Study of annealing twins and island grains in f.c.c. alloy and K. J. Kurzydłowski
- Y. Liu and B. R. Patterson 2651 Grain growth inhibition by porosity
- A. P. Zhilyaev, V. Yu. Gertsman, O. V. Mishin, A. I. Pshenichnyuk, I. V. Aleksandrov and R. Z. Valiev 2657 Grain boundary misorientation spectra (GBMS) determined by real ODF in f.c.c.-materials susceptible to annealing twinning
- L. Llanes, A. D. Rollett, C. Laird and J. L. Bassani 2667 Effect of grain size and annealing texture on the cyclic response and the substructure evolution of polycrystalline copper
- C. H. Weber, J. Y. Yang, J. P. A. Löfvander, C. G. Levi and A. G. Evans 2681 The creep and fracture resistance of  $\gamma$ -TiAl reinforced with  $\text{Al}_2\text{O}_3$  fibers
- C. S. Lee and B. J. Duggan 2691 Deformation banding and copper-type rolling textures
- S. Farenc, D. Caillard and A. Couret 2701 An *in situ* study of prismatic glide in  $\alpha$  titanium at low temperatures
- G. Bao and K. T. Ramesh 2711 Plastic flow of a tungsten-based composite under quasi-static compression
- Jiang Xinggang, Cui Jianzhong and Ma Longxiang 2721 The influence of the rolling direction on the mechanical behavior and cavity formation during superplastic deformation of 7075 Al alloy
- Y. S. Lee, T. J. Batt and S. C. Hwang 2729 Effects of creep and strain on the thermal stability of rod eutectics
- H. Biermann, T. Ungár, T. Pfannenmüller, G. Hoffmann, A. Borbely and H. Mughrabi 2743 Local variations of lattice parameter and long-range internal stresses during cyclic deformation of polycrystalline copper
- Xiaoxin Feng, A. M. Kumar and J. P. Hirth 2755 Mixed mode I/III fracture toughness of 2034 aluminum alloys
- R. H. Dauskardt 2765 A frictional-wear mechanism for fatigue-crack growth in grain bridging ceramics
- E. K. Tschech, H. O. K. Kirchner and K.-H. Schwalbe 2783 Cracks at interfaces of different cohesion
- A. Tschöpe and R. Birringer 2791 Thermodynamics of nanocrystalline platinum

#### NUMBER 10

- G. González-Doncel and O. D. Sherby 2797 High temperature creep behavior of metal matrix aluminum-SiC composites
- C. C. Wang and S. A. Akbar 2807 Diffusion in ordered alloys and intermetallic compounds

- J. C. H. Spence, Y. M. Huang 2815 Lattice trapping and surface reconstruction for silicon and O. Sankey cleavage on (111). *Ab-initio* quantum molecular dynamics calculations
- A. Morawiec, J. A. Szpunar 2825 Texture influence on the frequency of occurrence of CSL-boundaries in polycrystalline materials and D. C. Hinz
- E. Weissenbek and 2833 Influence of the fiber arrangement on the mechanical and F. G. Rammerstorfer thermo-mechanical behavior of short fiber reinforced MMCs
- A. Lakki, R. Schaller, 2845 High temperature superplastic creep and internal friction of M. Nauer and C. Carry yttria doped zirconia polycrystals
- N. A. Stelmashenko, 2855 Microindentations on W and Mo oriented single crystals: M. G. Walls, L. M. Brown an STM study and Yu. V. Milman
- B. J. Inkson, C. B. Boothroyd 2867 Microstructure of a  $\gamma$ - $\alpha_2$ - $\beta$  Ti-Al alloy containing iron and vanadium and C. J. Humphreys
- X. Zhang, P. M. Kelly and 2877 A new metastable orthorhombic phase Cu<sub>3</sub>Y A. Atrens
- S. M. Allameh, S. A. Dregia 2887 The role of interfacial energy in crystallite reorientation by twinning and P. G. Shewmon
- P. N. B. Anongba, 2897 Hardening stages of [112] copper single crystals at J. Bonneville and intermediate and high temperatures—I. Mechanical behaviour J. L. Martin
- P. N. B. Anongba, 2907 Hardening stages of [112] copper single crystals at J. Bonneville and intermediate and high temperatures—II. Slip systems J. L. Martin and microstructures
- L. M. Di, H. Bakker, P. Bárczy 2923 Phase transformations in the Nb–Au system by ball milling and Z. Gácsi and the study of the metastable phases
- D. L. Bourell and 2933 Effect of nonisothermal heating or cooling on grain growth W. Kaysser
- M. Krämer, M. J. Hoffmann 2939 Grain growth kinetics of Si<sub>3</sub>N<sub>4</sub> during  $\alpha/\beta$ -transformation and G. Petzow
- Wang Shuncai, Li Chunzhi 2949 Study of the new Frank–Kasper phases in Al–Li–Cu–Mg and Yan Minggao alloys
- J. Languillaume, F. Chmelik, 2953 Microstructures and hardness of ultrafine-grained Ni<sub>3</sub>Al G. Kapelski, F. Bordeaux, A. A. Nazarov, G. Canova, C. Esling, R. Z. Valiev and B. Baudelet
- H. Fujii, H. Nakae 2963 Interfacial reaction wetting in the boron nitride/molten and K. Okada aluminum system

N. J. Sørensen	2973	A planar model study of creep in metal matrix composites with misaligned short fibres
M. E. Thurston and A. T. Zehnder	2985	Experimental determination of silica/copper interfacial toughness
D. C. Houghton	2993	Equilibrium solubility and composition of mixed carbonitrides in microalloyed austenite
D. Josell and F. Spaepen	3007	Determination of the interfacial tension by zero creep experiments on multilayers—I. Theory
D. Josell and F. Spaepen	3017	Determination of the interfacial tension by zero creep experiments on multilayers—II. Experiment
R. D. Doherty, K. Kashyap and S. Panchanadeeswaran	3029	Direct observation of the development of recrystallization texture in commercial purity aluminum
C. M. Kennefick	3055	Off axis loading of silicon carbide fibers in a titanium aluminide matrix
W. B. Li and R. Warren	3065	A model for nano-indentation creep

I *Acta Metallurgica et Materialia*—Associate Editors

NUMBER 11

	iii	1993 <i>Acta Metallurgica</i> Gold Medal
	v	The <i>Acta Metallurgica</i> J. Herbert Hollomon Award
M. Dupeux, Chuangeng Wan and P. Willemin	3071	Application of binary interdiffusion models to $\gamma'(\text{Ni}_3\text{Al})/\gamma(\text{Ni})$ diffusion bonded interfaces
Y. Takahashi, K. Inoue and K. Nishiguchi	3077	Identification of void shrinkage mechanisms
J. Weertman	3085	Intrinsic versus extrinsic crack tip blunting
J. Kwieciński and J. W. Wyrzykowski	3089	The effect of recovery annealing after small plastic deformations on the yield strength of polycrystalline aluminium
P. S. Grant, B. Cantor and L. Katgerman	3097	Modelling of droplet dynamic and thermal histories during spray forming—I. Individual droplet behaviour
P. S. Grant, B. Cantor and L. Katgerman	3109	Modelling of droplet dynamic and thermal histories during spray forming—II. Effect of process parameters
B. Drevet, S. Kalogeropoulou and N. Eustathopoulos	3119	Wettability and interfacial bonding in Au-Si/SiC system
C. P. Ling and P. G. McCormick	3127	The effect of temperature on strain rate sensitivity in an Al-Mg-Si alloy
W. Bochniak	3133	The Cottrell-Stokes law for f.c.c. single crystals
K. J. Kurzydłowski and J. J. Bucki	3141	Flow stress dependence on the distribution of grain size in polycrystals

S. R. Gunawardena, S. Jansson and F. A. Leckie	3147	Modeling of anisotropic behavior of weakly bonded fiber reinforced MMC's
D. W. Meyer, R. F. Cooper and M. E. Plesha	3157	High-temperature creep and the interfacial mechanical response of a ceramic matrix composite
J. Martinez-Fernandez, M. Jimenez-Melendo, A. Dominguez-Rodriguez, K. P. D. Lagerlöf and A. H. Heuer	3171	High temperature precipitation hardening of $\text{Y}_2\text{O}_3$ partially-stabilized $\text{ZrO}_2$ (Y-PSZ) single crystals—II. A quantitative model for the hardening
K.-D. Fusenig and E. Nembach	3181	Dynamic dislocation effects in precipitation hardened materials
T. Tarfa, B. Sitaud and O. Dimitrov	3191	The effects of Ti or Ta on the kinetics of short range ordering and self-diffusion in Ni(Al)-based solid solutions
T. Rouxel and F. Wakai	3203	The brittle to ductile transition in a $\text{Si}_3\text{N}_4/\text{SiC}$ composite with a glassy grain boundary phase
D. R. Arantes, X. Y. Huang, C. Marte and R. Kirchheim	3215	Hydrogen diffusion and permeation in micro- and nanocrystalline nickel
V. Gupta	3223	Tensile crack-tip fields in elastic-ideally plastic hexagonal crystals and layered materials
M. Enomoto and C. Atkinson	3237	Diffusion-controlled growth of disordered interphase boundaries in finite matrix
A. Dlouhy, N. Merk and G. Eggeler	3245	A microstructural study of creep in short fibre reinforced aluminium alloys
Z. X. Guo and B. Derby	3257	Fibre uniformity and cavitation during the consolidation of metal-matrix composite via fibre-mat and matrix-foil diffusion bonding
G. Gottstein and L. S. Shvindlerman	3267	Theory of grain boundary motion in the presence of mobile particles
Y. Liu	3277	Internal friction associated with dislocation relaxations in virgin martensite—I. Experiments
A. S. Argon and P. Haasen	3289	A new mechanism of work hardening in the late stages of large strain plastic flow in f.c.c. and diamond cubic crystals
P. L. Rodriguez, F. C. Lovey, G. Guenin, J. L. Pelegrina, M. Sade and M. Morin	3307	Elastic constants of the monoclinic 18R martensite of a Cu-Zn-Al alloy
M. C. Shaw, D. B. Marshall, M. S. Dadkhah and A. G. Evans	3311	Cracking and damage mechanisms in ceramic/metal multilayers
C. P. Ling, P. G. McCormick and Y. Estrin	3323	A load perturbation method of examining dynamic strain ageing

- G. Rao, D. B. Zhang and  
P. Wynblatt**      3331 A determination of interfacial energy and interfacial composition in Cu-Pb and Cu-Pb-X alloys by solid state wetting measurements

NUMBER 12

iii Editorial Note

- R. Balasubramaniam**      3341 Overview No. 108: Accommodation effects during room temperature hydrogen transformations in the niobium-hydrogen system
- K. S. Ravichandran and  
V. Seetharaman**      3351 Prediction of steady state creep behavior of two phase composites
- Tuyen D. Le,  
I. M. Bernstein and  
S. Mahajan**      3363 Effects of hydrogen on micro-twinning in a Fe-Ti-C alloy
- R. Nakkalil, N. L. Richards  
and M. C. Chaturvedi**      3381 The influence of solidification mode on heat affected zone microfissuring in a nickel-iron base superalloy
- Longquan Shi and  
D. O. Northwood**      3393 Creep of an AISI 310 type stainless steel and its numerical simulation using the Öström-Lagneborg creep model
- L. Müller, U. Glatzel and  
M. Feller-Kniepmeier**      3401 Calculation of the internal stresses and strains in the microstructure of a single crystal nickel-base superalloy during creep
- Y. G. Li and M. H. Loretto**      3413 Antiphase boundaries in Ti48Al2Mo
- F. A. Khalid and  
D. V. Edmonds**      3421 Observations concerning transformation interfaces in steels
- A. S. Murthy and E. Goo**      3435 TEM studies of microtwins in the L<sub>1</sub><sub>0</sub> phase in 63.1 at.% NiAl
- D. Srivastava,  
Madangopal K., S. Banerjee  
and S. Ranganathan**      3445 Self accommodation morphology of martensite variants in Zr-2.5wt%Nb alloy
- A. S. Nandedkar**      3455 Atomistic simulation of formation of misfit dislocations in f.c.c. heterostructures
- C. R. Kao and Y. A. Chang**      3463 A theoretical analysis for the formation of periodic layered structure in ternary diffusion couples involving a displacement type of reactions
- S. N. Rosenbloom  
and C. Laird**      3473 Fatigue crack nucleation based on a random slip process—I. Computer model
- H. Koizumi,  
H. O. K. Kirchner  
and T. Suzuki**      3483 Kink pair nucleation and critical shear stress

J. Svoboda	3495	Cooperation of diffusive processes at cavity nucleation in high temperature creep
W. Lengauer, D. Rafaja, R. Täubler, C. Kral and P. Ettmayer	3505	Preparation of binary single-phase line compounds via diffusion couples: the subnitride phases $\eta\text{-Hf}_3\text{N}_{2-x}$ and $\zeta\text{-Hf}_4\text{N}_{3-x}$
G. Bao and F. Zok	3515	On the strength of ductile particle reinforced brittle matrix composites
I. Sinitsky, A. Men and D. G. Brandon	3525	Evaluation of coincidence lattice grain boundary and interface geometry in oxides by structural thermodynamics
A. E. Giannakopoulos, K. Breder and M. Olsson	3535	Microcracking of an internally pressurized ceramic ring— 2. Experimental observations
F. Y. Génin, W. W. Mullins and P. Wynblatt	3541	The effect of stress on grain boundary grooving
R. E. Wistrom, P. Børgesen and S. L. Sass	3549	Deuterium trapping in evaporated metal films—I. Characterization of the trapping
R. E. Wistrom, P. Børgesen and S. L. Sass	3557	Deuterium trapping in evaporated metal films—II. Relationship of the trapping to microstructure
S. C. Gill and W. Kurz	3563	Rapidly solidified Al–Cu alloys—I. Experimental determination of the microstructure selection map
E. Fraš and H. F. López	3575	A theoretical analysis of the chilling susceptibility of hypoeutectic Fe–C alloys
Chun-hway Hsueh	3585	Analyses of slice compression tests for aligned ceramic matrix composites
W. P. Sun, M. Militzer, D. Q. Bai and J. J. Jonas	3595	Measurement and modelling of the effects of precipitation on recrystallization under multipass deformation conditions